

# AMBT11 CHEMICAL ENGINEERING-II

## UNIT-1 MIXING

Types of agitators, flow patterns and power consumption.

## UNIT-2 STEADY STATE CONDUCTION

Fourier's law, concept of resistance to heat transfer, critical insulation thickness, conduction with heat generation.

## UNIT-3 CONVECTION

Film theory and concept of heat transfer coefficient. Heat transfer in laminar and turbulent flows.

## UNIT-4 HEAT EXCHANGER

Sizing of shell & tube heat exchangers. Heat transfer in agitated vessels.

## UNIT-5 BOILING & CONDENSATION

Heat transfer to boiling liquids and from condensing vapours.

## UNIT-6 FUNDAMENTALS OF MASS TRANSFER

Molecular diffusion in fluids and solids, concept of mass transfer coefficient. Equilibrium stage, multistage and continuous contactors with applications to gas absorption, calculation of NTU, HTU and number of stages.

## UNIT-7 PSYCHROMETRIC CHART AND ITS APPLICATIONS.

### Reference Books

1. Transport Processes and Unit Operations, Geankoplis C.J., Prentice Hall of India, 3 rd, 1999.
2. Heat Transfer, Holman J.P., McGraw Hill, New York, 8th Ed 1997.
3. Unit Operations of Chemical Engineering, McCabe W.L., Smith J.C. and Harriott P. McGraw Hill International edition, Singapore, 5th Ed., 1993.
4. Chemical Engineering, Vol. I and II, Coulson J.M. and Richardson J.F. Butterworth Heinemann, Oxford, 6th Ed., 1999.